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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.            | CONFIRMATION NO. |
|--|-------------|----------------------|--------------------------------|------------------|
| 10/811,524   | 03/29/2004  | Hardayal Singh Gill  | HITG.075PA(0544)               | 1925             |
| 62630 7590<br>DAVID W. LYNCH<br>CHAMBLISS, BAHNER & STOPHEL<br>1000 TALLAN SQUARE-H<br>TWO UNION SQUARE<br>CHATTANOOGA, TN 37402 |             |                      | EXAMINER<br>EVANS, JEFFERSON A |                  |
|  |             |                      | ART UNIT<br>2627               | PAPER NUMBER     |
| SHORTENED STATUTORY PERIOD OF RESPONSE   |             | MAIL DATE            | DELIVERY MODE                  |                  |
| 3 MONTHS   |             | 02/26/2007           | PAPER                          |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                        |                      |  |
|------------------------------|------------------------|----------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b> | <b>Applicant(s)</b>  |  |
|                              | 10/811,524             | GILL, HARDAYAL SINGH |  |
|                              | <b>Examiner</b>        | <b>Art Unit</b>      |  |
|                              | Jefferson A. Evans     | 2627                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 12/1/06

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-21 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1, 2, 8-10, 16, and 17 is/are rejected.

7) Claim(s) 3-7, 11-15 and 18-21 is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

|  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date: _____   | 6) <input type="checkbox"/> Other: _____                          |

Claims 1 to 21 are pending.

***Specification***

1. The disclosure is objected to because of the following informalities: claim 15 should depend from claim 14 to provide proper antecedent basis for "the coupling layer". Similarly, claim 21 should depend from claim 20.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 2, 9, and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al (U.S. 6,473,279). Carey discloses a GMR sensor (figure 3A) wherein the layers of the GMR stack are depicted as having the same width and which will thereby define the trackwidth, and which may be in CIP mode (column 6 – lines 4 to 7), comprising: a spacer layer (312) formed over a free-layer (310) of the GMR sensor stack; and an in-stack biasing layer (314) disposed over the spacer. The bias layer may be formed from NiFe (column 5 – lines 63 to 67).

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4. Claims 1, 2, 8, 9, 10, 16, and 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Pinarbasi (U.S. 2003/0179513). Pinarbasi discloses a CIP GMR sensor (figure 10) comprising: a spacer layer (246) formed over a free-layer (232) of the GMR sensor stack; and an in-stack biasing layer (244) disposed over the spacer. The bias layer may be formed from CoFe. The bias layer and free layer can be considered to have substantially the same width. A cap layer 242 is formed over the in-stack bias layer.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 8, 16, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. Smith does not appear to disclose a cap layer formed over the bias layer.

Official Notice is given that it was notoriously old and well known in the prior art to cover a GMR sensor with a cap layer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide Smith with a cap layer over the bias layer. The motivation would have been: the provision of such a cap layer was well known for protecting the layers positioned underneath the cap layer, such as from being negatively

affected later in the manufacturing process, and preventing unwanted diffusion between the layer underneath the cap layer and the material over the cap layer.

Applicant did not challenge this taking of Official Notice as set forth in the previous action and thus applicant is considered to have accepted the taking of Official Notice as being appropriate.

***Allowable Subject Matter***

7. Claims 3-7, 11-15, and 18-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jefferson A. Evans whose telephone number is 571-272-7574. The examiner can normally be reached on Monday to Friday, 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa Thi Nguyen can be reached on 571-272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Jefferson A. Evans  
Primary Examiner  
Art Unit 2627

JAE  
February 20, 2007

**JEFFERSON EVANS  
PRIMARY EXAMINER**